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10/561,151

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EXAMINER

PAIK, SANG YEOP

ART UNIT

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/561,151
Filing Date: September 25, 2006
Appellant(s): KINNARI ET AL.

Michael S. Huppert
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/11/2011 appealing from the Office action mailed 10/14/10.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 2, 5, 8-12 and 14 finally stand rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2002/0028070	Holen	3/2002
2004/0253734	Firmin	12-2004
2003/0178195	Agee et al	9-2003
6,328,583	Ness et al	12-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 2, 5, 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holen (US 2002/0028070) in view of view Firmin (US 2004/0253734) or Agee et al (US 2003/0178195).

Holen shows the method and the system claimed including a direct electric heating of a subsea pipeline with an electrical current source, a support device supporting the current source, a first and second electrical connections in contact with the pipeline, and a riser cable having a first and a second electrical conductor for conducting electrical current to the first and second electrical connections, in which the current source provides the current sufficient to cause heating of the pipeline to a

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desired temperature. But, Holen does not explicitly show its heating temperature that is above the melting point of ice but below the melting point of hydrate, and subsequently applying a second plug-counteracting procedure to remove hydrate plug or ice.

Firmin shows that it is known in the art to use means of chemical injection as well as the pressurization system to remove a hydrate plug, and Agee also shows a known means of depressurization to remove a hydrate plug or ice.

In view of Firmin or Agee, it would have been obvious to one of ordinary skill in the art to adapt Holen with a procedure the combination of, or in sequence of, heating and application of the chemical injection or depressurization to enhance the removing of a hydrate plug or ice in the pipeline to facilitate a more effective flow in the pipeline.

With respect to the recited temperature, Holen shows varying degrees of current and voltage levels, and it would have been obvious to set the temperature at the recited range or any other suitable range that depends on the intended applications, including the temperature above the melting point above the ice for its only removal but below the melting point of hydrate as a matter of routine experimentations.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holen in view of Firmin or Agee as applied to claims 2, 5, 8-11 and 14 above, and further in view of Ness et al (US 6,328,583).

Holen in view of Firmin or Agee shows the system claimed except for the support device being a vessel.

Ness shows a support device being a vessel from which an electrical cable is provided therefrom.

In view of Ness, it would have been obvious to one of ordinary skill in the art to adapt Holen, as modified by Holen in view of Firmin or Agee with its support device as that of a vessel, as an alternative means, to provide for a mobile support device that can transport its riser cable to different pipeline locations.

(10) Response to Argument

The appellant argues Holen would result in heating of the pipeline to a temperature sufficient to melt both ice plugs and hydrate plugs and that there is no disclosure or suggestion in Holen to teach for limiting such temperature above the melting point of ice but below the melting point of a hydrate. This argument is not deemed persuasive since Holen teaches that heating is provided so that the oil transportation will have a low viscosity (see page 1, para [0008]). Since Holen intends to heat the pipeline to allow a low viscosity in the pipeline, it would have been obvious to one of ordinary skill in the art provide enough heat to allow such low viscosity, and since it is also known in the art that hydrate remains solid at a temperature above the freezing point of water (also see page 1, para [0004] in the applied Agee reference), and if and when an ice is formed in the pipeline, a sufficient heating up to a temperature needed to melt the ice would be all that is needed to free the hydrates and would allow the hydrates to flow there through. Thus, as the claims call for removing plugs, Holen also removes the plugs by heating the pipe sufficient enough to prevent the formation of the

plugs with a voltage of 5-40 KV, it would have been obvious to one of ordinary skill in the art to provide the heating range within the recited range or any other suitable range as a matter of a routine experimentation to also maintain a low viscosity within the pipeline for a more efficient flow therein. It is also noted that Holen does not disclose melting of the hydrates in order to maintain the desired viscosity as argued by the appellant but teaches for preventing the formation of the hydrate plugs.

The appellant also argues that there is no motivation to combine Holen with that of Firmin or Agee since the Holen system can successfully prevent the hydrate plug formations. This argument is not deemed persuasive. The combination of the known methods and applications in the same field of endeavor would allow one of ordinary skill in the art to more effectively achieve a desired application as Agee also shows that the combination of any of more known methods can be used to achieve a desired applications including the liberating gas from the hydrate formations (also see page 3, para [0029]). While Holen shows one method to remove the hydrate plugs, the subsequent application of the chemical injection or depressurization as a second plug-counteracting procedure shown by Firmin or Agee would have yielded the predictable result of effectively removing or preventing hydrate plug formations in the pipeline.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/SANG Y PAIK/

Primary Examiner, Art Unit 3742

Conferees:

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742

/Henry Yuen/

Supervisory Patent Examiner, TC 3700